

What is claimed is:

- [Claim 1]** An assembly for blowing liquids from a vehicle comprising;
- a support plenum **(12)** for distributing air,
 - a nozzle system **(14)** including a nozzle **(16)** for directing air toward the top of a vehicle,
 - an air delivery conduit interconnecting said plenum **(12)** and said nozzle system **(14)** for delivering air from said plenum **(12)** to said nozzle system **(14)** while allowing said nozzle system **(14)** to move in an adjustment direction toward and away from said plenum **(12)** between raised and lowered vertical operating positions,
 - an actuator **(42)** for moving said nozzle system **(14)** between said operating positions whereby said nozzle system **(14)** may be moved up and down to accommodate the changing longitudinal configuration of a vehicle **(18)**,
 - a rotary drive **(46)** for rotating said nozzle **(16)** about a nozzle axis extending transversely to said adjustment direction and said nozzle **(16)** whereby said nozzle system **(14)** may be rotated about said nozzle axis to efficiently direct air against the contour of the vehicle **(18)**,
 - a first sensor **(50)** disposed upstream of said nozzle **(16)** for detecting the presence of a vehicle from above and for generating a blower start signal **(50)** and for generating an actuator signal to energize said actuator **(42)** and move said nozzle system **(14)** vertically between said operating positions,
 - a second sensor **(52)** disposed between said first sensor **(50)** and said nozzle **(16)** for detecting the contour of a vehicle from above,
 - a third sensor **(56)** for sensing the rear of a vehicle from above, and
 - a controller **(54)** responsive to said sensors for processing a rotary signal to energize said rotary drive **(46)** for rotating said nozzle **(16)** about a nozzle axis and for processing said blower start signal and said actuator signal.
- [Claim 2]** An assembly as set forth in claim 1 wherein said controller **(54)** includes a timer circuit **(68)** for timing the operational time for the blower in response to said blower start signal.
- [Claim 3]** An assembly as set forth in claim 1 wherein said controller **(54)** includes a processor **(70)** for adjusting the blower operational time in response to the number of vehicles per predetermined time period to optimize the number of blower starts per hour.
- [Claim 4]** An assembly as set forth in claim 1 wherein said controller **(54)** includes a processor **(70)** for providing a second blower start-up signal in response to said second sensor **(52)**.
- [Claim 5]** An assembly as set forth in claim 1 wherein said controller **(54)** includes a processor **(70)** for providing a rotary signal to energize said rotary drive **(46)** for rotating said nozzle **(16)** about a nozzle axis.

[Claim 6] An assembly as set forth in claim 1 wherein said controller **(54)** includes a processor **(70)** for providing a rotary signal to energize said rotary drive **(46)** for rotating said nozzle **(16)** about a nozzle axis in response to sensing the end of a roof of a vehicle.

[Claim 7] An assembly as set forth in claim 1 wherein said controller **(54)** includes a processor **(70)** for processing said actuator signal to energize said actuator **(42)** and move said nozzle system **(14)** vertically down in response to said first sensor **50**.

[Claim 8] An assembly as set forth in claim 1 wherein said controller **(54)** includes a processor **(70)** for processing a second actuator signal to energize said actuator **(42)** and move said nozzle system **(14)** vertically up in response to said second sensor **52** sensing a high contour vehicle.

[Claim 9] An assembly as set forth in claim 1 wherein said controller **(54)** includes a processor **(70)** for processing a second actuator signal to energize said actuator **(42)** and move said nozzle system **(14)** vertically down in response to said second sensor **(52)** sensing the rear end of the roof of the vehicle after a predetermined time delay sufficient for the rear end of the vehicle to reach said nozzle system **(14)**.

[Claim 10] An assembly as set forth in claim 7 wherein said controller **(54)** includes a processor **(70)** for processing a duplicate actuator signal to energize said actuator **(42)** and to make sure to move said nozzle system **(14)** vertically down in response to said third sensor **(56)** sensing a vehicle roof.

[Claim 11] An assembly as set forth in claim 1 including a feedback circuit **(72)** for signaling said controller **(54)** in response to said nozzle system **(14)** reaching said lowered operating position.

[Claim 12] An assembly as set forth in claim 1 including a biasing system **(40)** for automatically retracting said nozzle system **(14)** toward said raised operating position in response to loss of control by said actuator **(42)**.

[Claim 13] An assembly as set forth in claim 1 wherein said controller **(54)** includes a counter **(74)** for counting the number of vehicles passing under said nozzle system **(14)**.

[Claim 14] An assembly as set forth in claim 1 including a display monitor **(76)** for displaying information from said controller **(54)**.

[Claim 15] An assembly as set forth in claim 1 including a function switch **(80)** connected to said controller **(54)** for controlling said controller **(54)**.

[Claim 16] An assembly as set forth in claim 1 wherein said first **(50)** and second **(52)** and third **(56)** sensors are horizontally aligned so as to be disposed at the same height above the vehicle.

[Claim 17] An assembly for blowing liquids from a vehicle comprising:
a support plenum **(12)** for distributing air;

a nozzle system **(14)** including a nozzle **(16)** for directing air toward the top of a vehicle;

an air delivery conduit interconnecting said plenum **(12)** and said nozzle system **(14)** for delivering air from said plenum **(12)** to said nozzle system **(14)** while allowing said nozzle system **(14)** to move in an adjustment direction toward and away from said plenum **(12)** between raised and lowered vertical operating positions; an actuator **(42)** for moving said nozzle system **(14)** between said operating positions whereby said nozzle system **(14)** may be moved up and down to accommodate the changing longitudinal configuration of a vehicle **(18)**;

a rotary drive **(46)** for rotating said nozzle **(16)** about a nozzle axis extending transversely to said adjustment direction and said nozzle **(16)** whereby said nozzle system **(14)** may be rotated about said nozzle axis to efficiently direct air against the contour of the vehicle **(18)**;

a first sensor **(50)** disposed upstream of said nozzle **(16)** for detecting the presence of a vehicle from above and for generating a blower start signal **(50)** and for generating an actuator signal to energize said actuator **(42)**;

a second sensor **(52)** disposed between said first sensor **(50)** and said nozzle **(16)** for detecting the contour of a vehicle from above;

a third sensor **(56)** for sensing the rear of a vehicle from above;

said first **(50)** and second **(52)** and third **(56)** sensors being horizontally aligned so as to be disposed at the same height above the vehicle; and

a controller **(54)** responsive to said sensors **(50, 52, 56)** for generating signals to start said blower and move said nozzle system **(14)** vertically downward in response to said first sensor **(50)** detecting the presence of a vehicle without said second **(52)** and third **(56)** sensors detecting a vehicle, and for generating signals to move said nozzle system **(14)** vertically upward in response to said second sensor **(52)** detecting the presence of a vehicle with a high roof, and for generating signals to rotate said nozzle system **(14)** toward the front of the vehicle in response to said second sensor **(52)** detecting the presence of a vehicle without said second sensor **(52)** detecting a vehicle roof, and for generating signals to move said nozzle system **(14)** vertically downward and to rotate said nozzle system **(14)** toward the rear of the vehicle in response to said second sensor **(52)** detecting the rear end of the vehicle roof, and for generating signals to stop said blower in response to all of said sensors **(50, 52, 56)** detecting the absence of a vehicle.